PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of	Docket No: Q56325
Dirk OOMS, et al.	
Appln. No.: 09/422,347	Group Art Unit: 2662
Confirmation No.: 5427	Examiner: Dmitry LEVITAN
Filed: October 21, 1999	

For: DEVICE AND METHOD TO COMPRESS DESTINATION ADDRESSES OF A MULTICAST MESSAGE

REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.41, Appellants respectfully submit this Reply Brief in response to the Examiner's Answer dated October 25, 2006. Entry of this Reply Brief is respectfully requested.

STATUS OF CLAIMS

Claims 1-7, 9 and 11-20 are all of the claims pending in this application.

All of claims 1-7, 9 and 11-20 stand rejected under 35 U.S.C. 103 as unpatentable over Boivie (U.S. Patent 6,502,140).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The sole ground of rejection to be reviewed on appeal is whether or not claims 1-7. 9 and 11-20 are unpatentable over Boivie.

ARGUMENT

In this Reply Brief, Appellants wish to address certain points as raised in the Examiner's Answer, mailed on October 25, 2006.

Boivie discusses as background the addressing/routing technique whereby only the final destination address is included in the header. This is described, for example, at lines 23-30 of column 1. A disadvantage of this technique is that, since the header does not include any intermediate node information telling how to get to the final destination, each router along the way has to maintain a routing table of the intermediate nodes. The router can then forward the packet to the next intermediate node, and so forth up to the final destination. Boivie considers it a disadvantage that the routers have to store so much routing information, and deals with this problem by using a header which contains all of the routing information so that the router does not have to. So the concept of Boivie is to increase the amount of address information in the header, not decrease it.

So the solution provided by Boivie and that provided by the present invention are similar in that all of the required routing information is stored in the header. But Boivie does not at any time suggest a concern about the size of the header, and therefore does not suggest anywhere that the address information in the header should be compressed in some way. On the other hand, the size of the header is the primary concern of the present inventors, and the present invention is all about how to decrease the size of the header that can still include all of the routing information.

At the top of page 7 of the Examiner's Answer, the examiner disagrees, arguing that Boivie teaches "folding" of the routes, where the addresses R1R2C and R1R2D are combined/compressed into one address R1R2(CD) in step 2 of the disclosed process, the examiner directing attention to lines 30-55 of column 4. But the examiner has misread this passage, misunderstood Boivie, and recast Boivie to something like the present invention based on hindsight after reviewing the present application.

What has happened is that the examiner is confusing IP addresses with node names. In Boivie, the letters A, B, C, D, E, F, G, H, I designate nodes, as shown in Fig. 1. When node A

has to send a packet to node H, the sequence of intermediate nodes the packet will travel is A, R1, R2, C, F, H. A packet sent from node A to node G will follow the path A, R1, R2, C, G. But these are paths, not IP addresses. For example, a packet to be sent from node D to node H would follow the path D, R2, C, F, H. If this were the IP address, it would mean that the node H has one IP address for a packet sent from node A and a different IP address for a packet sent from node D, which is of course not the case.

So when Boivie talks about "folding" the routes, he is doing just that, i.e., folding routes, not compressing addresses. Note that in the entire discussion of folding at lines 30-55 of column 5, Boivie never once uses the word "address". And the folded end product is not an address but a "list." Boivie's list R1 (B R2 (CD)) at line 58 of column 5 will be the complete four-octet IP address of node R1 so that the packet will be forwarded to R1, followed by the complete four-octet IP addresses of each of nodes B and R2 so that the packet can be forwarded to B and R2, followed by the complete four-octet IP addresses of nodes C and D so that the packet arriving at R2 can be forwarded to each of nodes C and D.

If one were to generate a "folded" routing list corresponding to Fig. 1 of the present application, there would be a first address of node R1 to get the packet to that node, a next address of nodes R2 and R3 to get the packet to those nodes, and next addresses for each of nodes D1, D2 and D3, with the resulting "folded" routing list looking like: R1 (R2 (D1 D2) R3 (D3)). This folded routing list would then "unfold" as the packet worked its way along the tree. But each address for R1, R2, D1, D2, R3 and D3 would be a complete four-octet IP address. Boivie does not suggest anything else. That would mean 24 octets to express this folded routing list. The present invention, on the other hand, as described in the specification and in the Appeal Brief, would express the entire address list in only 8 octets.

So the "folded" routing list differs from a compressed address list in that (1) folding is not synonymous with compressing and (2) a routing list is not an address list. The examiner has glossed over these distinctions, and since there is no mention of either compression or addresses in Boivie, the rejection can only be based on hindsight.

At the bottom of page 7 of the Examiner's Answer, the examiner acknowledges appellants' argument as to the length of the header in Boivie being much longer than in the present invention, but dismisses this as irrelevant in that appealed claim 1 is directed to compressing a list of addresses, not claiming compression of the addresses themselves. This is incorrect. Claim 1 recites the detecting of a common prefix in at least two ***addresses***, the generation of a suffix list which represents the non-identical portions of the ***addresses*** that have the common prefix, and the adding of the suffix list to the common prefix to create a compound destination ***address*** consisting of compressed final destination ***addresses***.

At pages 8 and 9 of the Examiner' Answer, the examiner deals with the problem of Boivie not compressing addresses by discussing "source addressing," "predefined routes" and "unknown routes." The examiner is essentially arguing that the node list in Boivie ***is*** the address, so compressing the node list is compressing an address list. But this appears to be an after-the-fact rationalization in an effort to support a rejection based on hindsight. Boivie simply does not discuss how the addresses of any of the nodes are expressed. But it ***is*** clear that a single node will not have multiple different addresses depending on where the packet is coming from, as discussed above. As reflected in Fig. 1 of the present application, the address of, e.g., node D2 is A.B.C.E. In a "folded" routing list as taught by Boivie, if applied to Fig. 1 of the present application, the address of node D2 would be represented as A.B.C.E. There is no suggestion of trying to compress the addresses in Boivie.

Boivie seeks to eliminate the need for a router to store a routing table by including all of the intermediate nodes (i.e., the route) in the header. The present invention does not eliminate the routing table. Note, e.g., the discussion from line 16 of page 5 through line 3 of page 6 of the present application as originally filed, which describes how the compressed list of final destination addresses according to the present invention can be used to more efficiently access the routing table. The examiner has throughout confused destination addresses with routing information. In the "folded" routing list R1 (R2 (D1 D2) R3 (D3)) discussed above, the first stop on the route is node R1. To get to R1, the system must have an address for R1. That address will be a four-octet IP address which is the case for any network node. The addresses needed for

the other nodes R2, etc., will also be four-octet IP addresses, or at least full addresses of whatever addressing scheme is being used. Boivie suggests nothing different, and certainly says nothing about address compression. IN fact, Boivie does not even deal with addresses, sinly node names to include on a routing list. The examiner is either failing to understand this difference, or he is reading into Boivie a teaching which simply is not there, and in either case the rejection is not well-taken.

CONCLUSION

The present invention is directed to a technique of address list compression that may well share some similar concepts with what is taught by Boivie. But the technique is different, there is nothing in the art to have suggested the use of the claimed technique, and the results achieved by the invention are much different from what would result in Boivie, .e.g., 8 octets in the present invention v. 24 octets in Boivie, in the example explained above. Accordingly, it is submitted that the examiner has not presented a prima facie case of obviousness, and the rejections should be reversed.

Respectfully submitted,

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